

Being a PhD researcher at the Research Unit “Communicative AI: The automation of societal communication” (FOR 5656)

The Center for Media, Communication and Information Research (ZeMKI) at the University of Bremen, in collaboration with the Leibniz Institute for Media Research | Hans Bredow Institute (HBI) in Hamburg, the Institute of Sociology at the University of Vienna, and the BANDAS Center at the University of Graz, has successfully established a research unit funded by the German Research Foundation (DFG) and the Austrian Science Fund (FWF) on the topic of *Communicative Artificial Intelligence*. The Research Unit will investigate the consequences, opportunities, and risks associated with the profound change in the media environment brought about by communicative AI.



The increasing sophistication of automated communication is evident in the rise of speech assistants taking orders, social bots influencing debates, and machines generating texts. Public discourse on these phenomena reflects the ongoing challenges associated with the automation of communication. The complexities of today's societies compel a reliance on automation to meet communication needs, yet this reliance also generates additional issues that automated communication best suited to address.

The Research Unit comprises nine research projects plus a coordination project, all investigating how societal communication changes with the integration of communicative AI. Coordinated by the ZeMKI (Prof. Dr. Andreas Hepp) and the HBI (Prof. Dr. Wiebke Loosen), the unit includes top researchers from **media and communication studies, human-computer interaction, sociology, science and technology studies, and law**. Their goal is to systematically analyze the transformation of societal communication under the influence of artificial intelligence by investigating its consequences in various social areas and the related social discourse. The research focuses on social pioneers, the development of interfaces, the legal handling of communicative AI as well as that of companies, its role in journalism, in public (online) discourse, in everyday personal life through technological companions, in the health sector, and in learning and teaching.

An innovative **“ComAI Research Space”** is being established as a shared research environment for the participating institutions. This space aims to enhance the visibility of the Research Unit's findings for decision-makers across sectors across all locations. A central aspect of this initiative is the development of future scenarios for the dissemination and impact assessment of automation processes at different levels of societal communication.

How we support your career as a young researcher:

In view of the dynamics of current developments in the automation of societal communication, we expect a large number of different jobs with a focus on ComAI to be created in science, business, administration, and civil society in the future. We therefore want to prepare our young researchers for careers within and outside academia.

In the first funding period, we are starting the research unit exclusively with research assistants who want to pursue a doctorate. Accordingly, we initially concentrate on the doctoral career stage. Our basic philosophy here is to combine intensive supervision and clear structures with sufficient freedom.

The doctoral researchers of the Research Unit will jointly form a thematic cluster in the structured doctoral program of the ZeMKI, which is open to all scientific collaborators at the locations involved in the Research Unit. The structured program is characterized, among other things, by supporting workshops for exposé preparation, method groups and topic clusters, structured monthly supervision meetings, and offers for mediation in cases of conflict. Particularly in the domain of computer-aided methods, the doctoral program is supported by the Data Science

Center of the University of Bremen and the DataNord competence center in addition to its own expertise in the research projects. In accordance with international standards, there is a strict separation of supervision and assessment of the doctoral projects.

The existing institutional support structures for early career researchers such as BYRD (U Bremen), Hamburg Research Academy (HBI, planned), the Doctoral Academy Graz (U Graz), and the Center for Doctoral Studies (U Vienna) are available to the doctoral candidates of the research unit. To ensure mutual support between the participating locations, there will be a monthly jour-fixe organized by the coordination project where all doctoral researchers can exchange their experiences.

In addition, an annual ComAI Summer School is planned, for which external young scientists can also apply. This summer school has two objectives: First, it is about joint coaching for dissertation projects. Second, we want to give doctoral researchers the opportunity for early independence by allowing them to organize parts of the summer school themselves (e.g., selecting and inviting external experts).

In the fourth year of funding, we are planning a series of information events on practical fields of automated communication as part of our summer school to give doctoral researchers the opportunity to switch to non-university practice after their qualification if they wish to do so.

The projects of the Research Unit "Communicative AI"

P1 Pioneer Communities: Imagining ComAI and its possible futures

(Prof. Dr. Andreas Hepp)

Taking historical developments at Stanford University and MIT, as well as today's developments at OpenAI (GPT-4) and Aleph Alpha (Luminous) as examples, P1 focuses on ComAI's pioneer communities: groups who create "social horizons" for future development through their imaginative and experimental practices.

The project combines a historical perspective on earlier pioneer communities and tech movements as their contextual figurations, a perspective on the current influences of both, and a perspective on pioneer communities' contribution to the spread of ComAI. The analysis is guided by four research questions:

1. How did tech movements and pioneer communities prefigure today's ComAI?
2. What characterizes their imaginaries of ComAI and their influence on current ComAI developments?
3. What do pioneer communities contribute to the spread of ComAI?
4. What role do pioneer communities play in the sociomaterial constitution of ComAI?

To answer these research questions, the project uses a mixed-method design analyzing historical sources, media discourses, interviews, observations, and online-networks in Germany, the UK and the US.

P2 Interfaces: Implementing user- centered ComAI

(Prof. Dr. Rainer Malaka)

With the rise of Large Language Models (LLMs) and their adaptation to human-computer communication based on human feedback, users are increasingly expecting human-like interaction from ComAIs.

However, these models designed specifically for human-computer communication face two main problems: First, they rely only on the data they are trained with, which is often biased and insufficient.

Second, they are only created to produce text and responses, but there is no validation of the truthfulness of the generated output during the training. Therefore, when designing and building ComAIs, it is important that users are made aware that of these inherent issues with LLMs. Interfaces are crucial in helping users to identify problematic information and evaluate the quality and reliability of data sources.

Against this background, the project uses the example of conversational bots to examine the design and implementation of ComAI interfaces as a dimension of their sociomaterial constitution. Investigating both the conversational and paralinguistic features of interfaces, we research which

implementation features of the interface design influence user-alignment and how.

P3 Law: The Juridification of ComAI

(Prof. Dr. Wolfgang Schulz)

In this project, we trace judicialization in the field of ComAI. We focus on the legal frameworks for conversational bots (specifically ChatGPT) and social bots (specifically on X/Twitter and Facebook), first, from the perspective of communications law, and second, emerging AI regulation.

The project centers around the legal situation in Germany, reconstructing basic concepts of media law such as “personhood,” “opinion,” and “expression.” It will also cover the current and soon-to-be-enacted EU legislation—namely the “AI Act”, on which a political agreement was reached in December 2023 based on the EU Commission’s proposal—to include the constructions underlying the regulation of ComAI.

It will undertake a functional comparison with UK, Austrian, and US legal contexts to include more approaches to the ongoing judicialization. Our focus lies on how legal definitions and concepts are part of the sociomaterial constitution of ComAI and which elements and connections of hybrid figurations are legally significant.

P4 Governance: Private ordering of ComAI through corporate communication and policies

(Prof. Dr. Christian Katzenbach)

In this project we investigate private ordering as one dimension of ComAI's socio-material constitution with regard to corporate communication and policies in the context of public controversies, focusing on Germany, the UK and the US.

The project examines how corporate strategies and product policies of companies such as Alphabet, Amazon, and OpenAI, as well as public controversies, contribute to and negotiate what ComAI products are and how they are governed.

1. How is the ordering of ComAI portrayed and politicized in public controversies?
2. How do companies position ComAI as a product?
3. What are the policies and terms of services that industries enforce for using them?
4. Which is the role of private ordering in the sociomaterial constitution of ComAI?
5. How is ComAI's agency negotiated and attributed in this context?

These five questions will be investigated across four conversational bots and artificial companions (Alphabet's Bard and OpenAI's ChatGPT, Amazon's Alexa, and a further case yet to be determined) using both qualitative and quantitative (computational) content analyses of public material, as well as interviews with company representatives.

P5 Journalism: Automating the news and journalistic autonomy

(Prof. Dr. Wiebke Loosen)

This project investigates ComAI's role in journalism, focusing on the challenges to journalistic autonomy at the interactional, organizational, and societal levels.

We propose that journalism is particularly concerned with the relationships between humans and machines within societal communication. This relationship is crucial for both self-reflection and the appropriation of ComAI in the journalistic field. Our research is guided by four main questions:

1. How do journalists and other professionals interact with ComAI, and what agency do they construct in relation to it?

2. What patterns exist within ComAI's organizational embeddings and its related forms of hybrid agency
3. How does ComAI relate to conceptions of news and objectivity, journalistic roles, audience relationships, and imaginaries of ComAI's futures?
4. How is ComAI appropriated in journalism, and how might this challenge journalistic autonomy?

To answer these questions, the project employs a mixed-methods design, including ethnographies conducted in three different types of media organizations in Germany, Austria, and the UK, as well as interviews, group discussions, and ethnographies at events and conferences.

P6 Political discourse: ComAI and deliberative quality

(Prof. Dr. Cornelius Puschmann /
Dr. Gregor Wiedemann)

Political deliberation on the internet is widely seen as crucial to broader public debates on fundamental societal challenges by virtue of its speed, breadth, and openness. However, discussions on social media platforms are frequently marked by polarization, incivility, a lack of factual accuracy, and one-sided arguments.

This project will examine the role of communicative AI in political discourse through online discursive monitoring and intervention. Adopting a largely experimental approach, we will investigate the impact of social bots powered by large language models (LLMs) on the quality of deliberation. Our case study will focus on debates related to climate change on German-language Twitter/X, Mastodon, and Bluesky.

By combining discourse theory with recent innovations in LLMs, we will both monitor and intervene in public political discussions. We will collaborate with a group of public speakers on climate change to closely analyze how social bots are used in political discourse. This will involve studying discourse trajectories with and without bot intervention and conducting user surveys to understand the effects of these interventions.

P7 Personal sphere: Companionship and ComAI

(Prof. Dr. Michaela Pfadenhauer)

P7 investigates the emergence of artificial companionship apps (e.g., Replika, Nomi.ai, Paradot) and their impact on personal relationships, reflecting the evolving nature

of companionship in the twenty-first century. Since these apps draw on professional expertise from the counselling field, the project compares them with existing companionship services, focusing on their roles in managing grief and everyday life.

We analyze companionship as a communicative form that fosters a relationship that is ideally "close to equal" but remains inherently asymmetric. This form of companionship is established through the exchange of "narrative episodes," building a connection over time. Companionship, in this context, is not just an individual experience but also a facet of societal communication.

To explore this concept, the project employs discourse and genre analysis along with (digital) ethnography to examine the (hybrid) agency in these companion relationships.

The investigation is guided by four research questions:

1. How is the concept of companionship discursively constructed?
2. How do "narrative episodes" shape companionship as a communicative form?
3. How does ComAI refigure companion relations in terms of agency?
4. How can we theorize the use of ComAI in the personal sphere as a challenge

to traditional notions of companionship?

P8 Health: Caring through ComAI (Prof. Dr. Juliane Jarke)

ComAI is increasingly presented as a solution to the care needs of an ageing population, particularly in the face of reduced funding for healthcare systems and a shortage of healthcare professionals. These technologies are also promoted as tools for "healthy ageing", a policy objective aimed at enhancing the wellbeing of older adults. Within this framework, technology companies and policymakers create regimes of anticipation that ascribe various "care obligations" to ComAI including managing healthy aging, providing health information, and facilitating older adults' access to healthcare services.

The project investigates how different groups of older adults (can) appropriate communicative AI. This is done using digital methods and conducting qualitative case studies in Austria, Germany, the UK and the USA.

Four research questions guide the project:

1. What regimes of anticipations by powerful actors such as technology companies, policy makers and healthcare managers about the care obligations of ComAI

have emerged in the context of healthy ageing?

2. What types of hybrid healthcare figurations emerge in response to the aforementioned regimes of anticipation?

3. What (self-)care practices of older adults, their informal carers and healthcare workers emerge through, for and in opposition to ComAI?

4. How can we theorize the appropriation of ComAI for healthy ageing with a focus on the challenge of care?

P9 Education: ComAI for learning and teaching

(Prof. Dr. Andreas Breiter)

In education, particularly in higher education, technology has long been used to enhance learning and teaching. Recently, GPT-4 and other LLMs are touted as

“game changers,” raising both societal expectations and concerns. The project will explore how the introduction of ComAI impacts learning, teaching, and administrative processes within higher education institutions.

The project aims to investigate how higher education institutions respond to these technological changes, focusing on the embedded biases and related social inequalities that may arise. This will be achieved through qualitative interviews and case studies conducted at five German universities, complimented by student surveys, and analyses of data journeys and administrative process models.

To better understand the dynamics of ComAI’s integration and the challenges it presents, including patterns of adaptation and future expectations, the research will also include a comparative analysis with US universities where ComAI is already more extensively implemented.

ComAI Research Space: Discourses, technologies and futures

Together, we will establish an integrated ComAI Research Space with the assistance of the Research Unit.

This space will coordinate joint data collection efforts, provide data access to the projects, and create an open repository. It aligns with our goal of investigating media and communication technologies during their emergence, extending beyond the traditional focus on widely-used technologies in media and communication studies. We aim to remain attuned to emerging practices and future developments. For these purposes, the ComAI Research Space has three components:

1) Documenting discourses

Which ComAI is being discussed publicly, by whom, and in what manner? For the Research Unit as a whole and for individual projects, understanding public discourse about ComAI is crucial. This involves examining how ComAI is represented in relation to its various dimensions of sociomaterial constitution and the social domains under investigation. To systematically explore public debates, we will conduct a semi-automated content analysis of public communication in our core sample countries (Austria, Germany, the UK, and the US). The

ComAI Research Space will provide projects with data derived from this semi-automated content analysis. This shared data foundation allows projects to contextualize their findings within broader trend analyses and collaborate on joint publications.

2) Monitoring technologies

Which new ComAI technologies are emerging, which are declining in importance, and what is their context of use? This component utilizes a qualitative panel based on a unique form of citizen science. Through the projects' field contacts, we will establish a qualitative panel consisting of 100 trend scouts. This panel will monitor current technological developments in ComAI at regular intervals. The goal is to effectively capture the evolving landscape of automated communication.

3) Exploring futures

What are the assumed future developments of ComAI? This question aims to anticipate possible futures for automated communication. Our objective is to collect imaginaries of emergent futures of ComAI through a series of "Exploring Future Workshops".

FOR 5656 Early Career Support

Supervision and feedback measures

- Thematic cluster in structured doctoral programs at ZeMKI and HBI (open to all doctoral researchers)
- Doctoral researchers will be co-supervised by two PIs
- Separation between supervisor and examiner role
- Monthly jour fixe for doctoral researchers across RU locations
- Writing workshops, method groups, structured monthly supervision meetings
- Mediation in cases of conflict
- Introduction to (inter-)national publication processes, conferences and research community
- Preparation for careers inside and outside academia

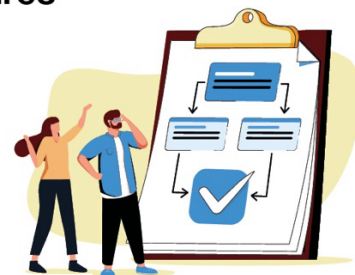


Annual ComAI Summer School

- Five days per year
- Expert feedback on dissertation projects
- Peer-to-peer feedback
- Independent planning of major elements by doctoral researchers

Participation in early-career support measures

U Bremen	Bremen Early Career Researcher Development Program BYRD; Data Science Center for computational methods
HBI / U Hamburg	WiSo Graduate School, Law Graduate School
U Graz	Doctoral Academy of the School of Social Sciences, Business and Economics
U Vienna	Center for Doctoral Studies



DFG-Forschungsgruppe 5656

„Kommunikative KI: Die Automatisierung der gesellschaftlichen Kommunikation“ /
„Communicative AI: The Automation of Societal Communication”

Website: <https://www.comai.space>

Coordination: University of Bremen
ZeMKI, Center for Media, Communication and Information Research
Linzer Str. 4
28359 Bremen

First Spokesperson: Prof. Dr. Andreas Hepp
E-Mail: andreas.hepp@uni-bremen.de
Tel.: +49 421 218 – 67620
www.zemki.uni-bremen.de
www.zemki.uni-bremen.de/en/

Second Spokesperson: Prof. Dr. Wiebke Loosen
E-Mail: w.loosen@leibniz-hbi.de
Tel.: +49 40 45021791
<https://leibniz-hbi.de/de>
<https://leibniz-hbi.de/en>

Participating principal investigators:

Prof. Dr. Andreas Breiter	ZeMKI, University of Bremen / ifib, Germany
Prof. Dr. Andreas Hepp	ZeMKI, University of Bremen, Germany
Prof. Dr. Juliane Jarke	BANDAS Center, University of Graz, Austria
Prof. Dr. Christian Katzenbach	ZeMKI, University of Bremen, Germany
Prof. Dr. Wiebke Loosen	Leibniz Institute for Media Research HBI, Germany
Prof. Dr. Rainer Malaka	TZI, University of Bremen, Germany
Prof. Dr. Michaela Pfadenhauer	Institute of Sociology, University of Vienna, Austria
Prof. Dr. Cornelius Puschmann	ZeMKI, University of Bremen, Germany
Prof. Dr. Wolfgang Schulz	Leibniz Institute for Media Research HBI, Germany
Dr. Gregor Wiedemann	Leibniz Institute for Media Research HBI, Germany